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(54) PLASTICS CONTAINERS AND COVERS THEREFOR

(71) I, RAYMOND AUGUST HEISLER, a citizen of the United States of America, of 657 Dakota Trail, in the Township of Franklin Lakes 07417, in the County of Bergen and State of New Jersey, United States of America, do hereby declare the invention for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to plastics containers and covers therefor.

Plastics containers including tapered pails for paint and the like are, of course, well known. Such containers, particularly those used to package and store prepared food, have flexible covers, but usually use an adhesive seal to maintain a hermetic or vacuum sealing. Several patents, including those to Tupper, pertain to containers for use with plastics snap lids. Other containers, particularly those made by blow moulding, are often provided with integrally moulded handles. Many attempts have been made to provide a plastics container for use in the packaging of paint, particularly in one gallon lots. In such a container, because of the weight of the paint, it is highly desirable, if not essential, that a bail handle be provided so that the container may be easily carried. In certain pails or containers previously offered to the industry the containers have had button-type protuberances formed or provided on their sidewalls and to these protuberances there has been attached strap-like bails of plastics strip. In other blow-moulded containers bail handles have been moulded as an integral part of the container, but usually these handles have been moulded on the vertical parting line of the mould. In the high speed filling of containers it is necessary that the bail handle be disposed and maintained in a condition other than in the way of the open top of the con-

tainer.

The closing and sealing of the open end of the container by a cover requires that the cover so provided must not only provide a positive seal and retention during its shipment and storage, but also that the cover must be easily removable by the customer while providing for easy replacement and resealing of the container by the cover.

The present invention provides a container and cover therefor comprising:

a) a moulded plastics container having an open top formed with a laterally outwardly extending rim, said container having an upper wall portion having a downwardly tapered inner surface and terminating at or near a laterally inwardly directed bead at the inner edge of the rim;

b) a ring-like portion extending laterally outwardly from the inner bead and forming the upper surface of the rim;

c) an annular flange formed integrally with the ring-like portion of the rim and extending downwardly from the outer edge of the ring-like portion;

d) a bail handle moulded as a part of the container and having its ends extending laterally outwardly from the outer surface of the downwardly-extending flange, said handle being moulded in position so as to lie wholly below the container rim, the parts of the handle, except its ends, being spaced laterally outwardly of the flange whereby the handle may be swung around and by its ends;

e) a cover of plastics material having a portion depending therefrom, a laterally outer face of such portion being arranged so as to nest within and engage the inner wall of the container in the region of the junction between said upper wall portion and the remainder of the wall of the container;

f) a groove formed at the upper extent of said face of said depending portion of the cover and next to a planar, ring-like portion

of the cover extending laterally outwardly from the depending portion of the cover, said groove being arranged to engage the bead of the container when the cover is mounted on the container, and

g) an annular rim formed integrally with said planar portion of the cover and extending downwardly from the laterally outer edge thereof, the annular rim being arranged to engage the annular flange of the rim of the container in such a manner as to urge said planar cover portion laterally outwardly to maintain the bead of the container in the cover groove whilst the annular rim of the cover is in engagement with the annular flange of the container rim.

The nature of the invention will be more readily apparent from the following description, given by way of example only, of a number of containers and covers therefor in accordance with the invention, such containers and covers being illustrated in the accompanying drawings, in which:

Figure 1 represents a side view of a first container with a portion of the sidewall broken away to show in section the moulded construction of the container;

Figure 2 represents on an enlarged scale as compared to Figure 1 a fragmentary and sectional view showing a rim portion of three containers of the form shown in Figure 1 in a nested array and with a cover mounted in the upper of the three containers, and additionally shown in this view is a fragmentary portion of a bottom of a container as it rests upon and in a formed nesting portion of the cover;

Figure 3 represents a top view of the container of Figure 1, this view being taken on the line 3-3 of Figure 1 and looking in the direction of the arrows;

Figure 4 represents an enlarged and fragmentary sectional view of a portion of the upper rim of the container of Figure 3 and shows in particular the relationship of the handle or bail to the moulded upper rim of the container, the view being taken on the line 4-4 of Figure 3, and in addition there being shown a fragmentary portion of a cover in a mounted condition upon and in the upper open end of the container;

Figure 5 represents a fragmentary sectional view of the upper rim of the container of Figure 3, this view being similar to the view of Figure 4 but with the view taken a short distance therefrom, the view being taken on the line 5-5 of Figure 3 through the enlarged handle portion of the bail and showing in particular a moulded portion providing a retaining connection between the handle and the rim portion of the container;

Figure 6 represents a fragmentary sectional view in enlarged scale of the upper rim and cover and showing an alternative lip and cover construction;

Figure 7 represents part of Figure 6 on a greatly enlarged scale and shows the retaining ledge of the container as it is crowded into a sealing interference fit in the retaining notch or groove of the cover;

Figure 8 represents in a greatly enlarged fragmentary plan view the reinforcing connection of the handle to the rim of the container;

Figure 9 represents in a greatly enlarged fragmentary sectional view an alternative construction of the bottom edge of the container;

Figure 10 represents in a fragmentary sectional view an alternative construction portion of the midportion of the cover;

Figure 11 represents a fragmentary sectional view of the cover of Figure 10 as it nests the bottom corner of the container of Figure 9;

Figure 12 represents a fragmentary sectional view of a container showing an alternative construction of the connection between the handle and container and a pry shoulder as moulded into the container rim;

Figure 13A represents a fragmentary sectional side view of a cover having a self-sealing plug disposed on the outer part of the cover and permitting the penetration and withdrawal of a needle through the cover and seal;

Figure 13B represents a fragmentary sectional side view of a cover having a self-sealing plug as in Figure 13A but with the plug disposed on the underside of the cover;

Figure 14A represents an enlarged fragmentary sectional side view of yet another alternative cover configuration wherein the outer downturned flange is formed with an inner annular recess and adjacent bead, said bead being disposed above a larger tapered opening;

Figure 14B represents the sectional side view of the cover of Figure 14A as it rests on the top rim of a container prior to its mounting thereon; and

Figure 14C represents a sectional side view of the cover of Figure 14A after a ring portion of the cover has been stretched by camming into a mounted and retained condition with the outer annular recess of the cover being retained on an outer bead formed on the upper outer rim of the container.

Detailed Description of the Container and Cover of Figures 1 to 5

Referring now in particular to the drawings of the container and cover as shown in Figures 1 to 5, there is disclosed a container 15 which is a one-piece moulded plastics unit having a wall thickness of about forty-thousandths of an inch. This thickness has been selected to ensure a smooth flowing and knitting characteristic of the molten plastics, which may be a high density poly-

propylene or polyethylene, as it flows into the mould to form the container. The container has a circular sidewall 16 which is of tapered configuration terminating at and joining a bottom with a smooth and substantially arcuate corner 17. The bottom portion 18 is raised slightly above corner 17 and is generally parallel to the top of the container. A short upper inner surface of the rim of the container is formed with a slightly greater taper 19 and extends upwardly and outwardly from the sidewall 16.

This upper portion 19 terminates at an inwardly extending lip 20 which may be a more or less rounded bead or, alternatively, may be a contoured lip which in cross section may resemble an acme thread. This lip is formed adjacent the top surface of the container. From this lip the rim of the container extends outwardly as a flat ring-like member 22 which then turns downwardly at substantially right angles to the plane of member 22 to form an annular flange 24 which terminates at a bottom edge 26. This bottom edge is a determined distance from surface 22 so as to provide a support shoulder for the container to rest upon the upper surface 22 of the nested next lower container. This spacing is sufficient to ensure that the sidewalls 16 of the succeeding, and all like nested containers, are not in a locked relationship.

A bail handle 30 is integrally connected to the outer surface of the downwardly extending annular flange 24. The ends 31 and 32 of the handle, as seen in Figure 3, are diametrically spaced on the container. Each end has web attachment which provides a reinforcement of the handle end. These webs are identified as 33, 34, 35 and 36 and as webs or fins provide additional strength to the handle attachment where it is moulded to the sidewall of the rim. Also extending from the inner sidewall of the annular flange 24 to the outer surface of walls 16 and 19 of the container are reinforcing ribs 38 which are seen in phantom outline in Figure 3. These ribs are spaced as desired around the rim of the container to provide a desired rigidity to the upper rim.

Referring now in particular to Figures 4 and 5 it is to be noted that the sidewall 16 after it changes its taper at 19 terminates at the lip 20 which protrudes inwardly a determined extent which may be from fifteen to fifty-thousands of an inch. The width of the lip may be a selected like amount and as shown in Figures 4 and 5 is a round bead. The cover 40 has an intermediate, planar portion 42 which, as seen in Figure 2, is formed with an inner portion which is disposed below the plane of portion 42 to provide a recess or nest portion 44 sized to receive the arcuate configuration of the bottom corner 17 of the

container 15 when it is seated on the cover. Adjacent the intermediate midportion 42, the lid is formed with a downwardly extending V-shaped configuration 46 which as it extends upwardly and outwardly merges with a gradually thickened portion which is then undercut to provide an engaging lip 48 immediately below an undercut which provides a recess 50. This undercut engages the protruding lip 20 provided on the upper inner edge portion of the container. In its seated engagement this mating of lip and groove provides a fluid-tight seal of the cover in the container. From this undercut the V-shaped plug portion extends a little upwardly and then outwardly to a planar ring-like configuration 52 of determined outer diameter which terminates at a downwardly extending annular rim 54 which is sized to snugly engage the outer wall 24 of the rim of the container.

As seen in Figures 1, 3 and 5 the midportion of the handle 30 is widened to provide a grip portion 60 which, with its widened extent, provides an easy hand grip for the user. Between this grip portion 60 and the wall 24 of the container, and as the container is moulded, there are provided at least two connection portions 62 and 64. These connection portions serve two requirements; they first ensure that the enlarged portion of the handle is satisfactorily filled during its moulding with a flow of material which is usually injected from the bottom of the container; and provide a bridge support for the handle and ensure that the handle stays in its moulded midplane condition until the container is to be used by the purchaser of the material.

Alternative Embodiments of Figures 6 and 7

The lip formed on the upper inner edge of the container need not be arcuate as in Figures 4 and 5, but may be truncated as shown as an inward lip 120 in Figures 6 and 7. The lip 120 has its upper inward edge 149 contoured snugly to engage the top tapered surface in the undercut or recess 150 formed in the cover. During mounting, the inwardly extending lip 120 is moved upwardly by inclined surface 151 which forms the top surface of lip 148. As the lip 120 is moved inwardly and upwardly with respect to the recess 150 the upper inward edge 149 of the lip 120 is deflected downwardly by upper surface 152 of the recess 150 to provide a compressed seal of lip 120 in the recess 150. That portion of edge 149 which is shown in dashed outline in Figure 7 is the portion compressed in the slot and is actually only a few thousandths of an inch in thickness. This compressed portion is sufficient to make a fluid-tight seal.

Handle Attachment of Figure 8

In Figure 8 there is shown an alternative

form for the attachment of the handle 30 to the container. The end 32 of the handle is integrally moulded to flange 24 as in Figure 3. Reinforcement of this attaching end enables the plastics handle to sustain jerks and sudden pulls as well as excessive rotative action. This reinforcement is provided by the fins shown in Figure 8. Fin 135 extends outwardly from the flange 24 and around the outer radius of end 32, terminating at an edge aligned with the outside edge of the straight portion of the handle. Fin 136, like fin 135, also extends from the flange 24 to the straight portion of the handle 30, in this case around the inner radius of end 32.

Alternative Bottom Corner of the Container as shown in Figures 9 and 11

In Figures 9 and 11 there is shown an alternative construction of the bottom corner of the container. As seen in enlarged detail in Figure 9, a container 115 has sidewall 116 connected to a radius transition 117 which merges with the centre of the container bottom 18. Sidewall 116 continues downwardly from the connected transition to form a projecting support rim 119 which preferably extends a few thousandths of an inch beyond the plane of the curved bottom 117.

Cover of Figures 10 and 11

Referring next to Figures 10 and 11, the cover of Figure 2 has its centre portion formed in an alternative manner so as to provide a retaining means for a round label or booklet. Recessed portion 144 of the cover 140 is a determined distance below an intermediate planar portion 142 of cover 140. The vertical portion of the lid extending from portion 142 to portion 144 in this alternative construction is formed with an intumed rim or lip portion 143. This lip 143 provides a circular recess into which a label or booklet may be placed and retained. The inner edge of lip 143 also serves to provide a retaining shoulder for container 115.

Pry Rim of Figure 12

In Figure 12 the container has an annular flange 124 which is moulded with a protruding shelf 125 which is spaced below the downward termination of the annular rim 54 of cover 40. This shelf provides a pry slot between itself and the rim 54 into which a coin, screwdriver or other prying implement may be inserted. This shelf enables a prying implement locally to displace the cover rim 54 from the annular flange 124 after and by which the rim 54 may be grasped for removal of the cover from the container.

In an alternative embodiment shown in Figure 12 it is to be noted that handle 60 is attached to flange 124 by means of connection portions 164 which are formed so as

to be below the parting line of the mould.

Self-Sealing Portions for a Cover as in Figures 13A and 13B

The cover member may be provided with a self-sealing portion through which an injecting needle may be inserted to permit colouring matter and the like to be injected into the contents of the container.

In Figure 13A a cover 240 has a surface portion 244 whose midportion has a recess 245 formed therein. A soft rubber, plastics or sponge-like composition 246 provides a self-sealing plug through which a hollow needle (not shown) may be inserted. The needle is also caused to pierce the midportion of the plastics wall forming the recess 245 after which a colouring material or other additive is injected into the container through the hollow needle. After the additive has been fed into the container the needle is withdrawn with the self-sealing plug 246 preventing loss of fluid material from the container.

In Figure 13B a cover 340, like cover 240, has a surface portion 344 whose midportion is formed with a shallow recess 345. On the opposite side a self-sealing plug 364 similar to or of an identical composition to plug 246 is retained in a skirt 347 which extends below recess 345. As in the cover of Figure 13A the cover of Figure 13B permits a sharp pointed hollow needle (not shown) to be inserted through the cover portion 345 and then through self-sealing plug 346. Skirt 347 is aligned with recess 345 so that the operator using the hollow needle can be sure that he will pierce the self-sealing plug and after making the injection to withdraw the needle with the cover again sealed by the plug 346.

Alternative Cover and Container Top as seen in Figures 14A, 14B and 14C

Referring finally to the container and cover as shown in Figures 14A, 14B and 14C the cover and container rim of Figures 6 and 12 are modified so that a cover 440 has a downwardly directed V-shaped portion 446 whose outer upper portion is formed with an engaging lip 448 leading from an outwardly tapered portion 449 to an outer face 450. Midway in this face is formed a small outwardly extending fin or feather lip 451 for a purpose to be hereinafter more fully described. Immediately above lip 448 is formed an inner groove or undercut 452 which may be more or less semicircular in configuration. Immediately above groove 452 the cover extends outwardly in a planar ring 454 of determined thickness. This ring terminates at an outer groove or undercut 456, which also is preferably semicircular in configuration, and which is formed at the upper extent of the inner face of the downwardly extending annular rim of the cover. An inwardly

directed lip or shoulder 458 forming the lower portion of groove 456 terminates or flows into a conical surface 460 which extends downwardly and outwardly to a lower wall 462. In an unmounted or relaxed condition the cover 440 has its outer surface or face portion 464 disposed at a slight tilt inwardly and upwardly which is a matter of selection to assist in easy moulding.

10 The container to accommodate the cover shown in Figure 14A has its top rim also of a slightly different configuration than that of Figures 6 and 12. From sidewall 16 a portion 19 of the container extends upwardly and outwardly and then joins a short vertical section 470. Above this section is formed an inwardly extending lip 472 which is similar to the lip 20 of Figure 4. The upper rim of the container then extends outwardly as a flat rim 474 like the rim 22 shown in Figure 4. The outer edge of rim 474 is formed with a bead 476 which is of a greater diameter than is the diameter of groove 456. Below the bead the rim of the container is formed with a downwardly extending outer flange 478 to which handle 30 is attached as above-described. Reinforcing ribs 38 are also provided in the rim portion of this container as above-described.

Use and Operation

30 Conventionally, containers or pails which are injection moulded and are of a similar configuration to the containers described herein are moulded by injecting into the midportion of the bottom of the container and in this respect this container is no different from the others. However, it is to be noted that the parting line of the mould for forming this container is not at the top upper surface of the open end 22 of the container but instead the parting line is substantially at the midportion of the handle 30, and in particular is midway of the large portion 60 as indicated by a phantom line 70 as seen in Figure 5. This construction of the mould permits or ensures that the handle, as moulded, lies parallel to the top of the container but is displaced a short distance below it. The connection portions 62 and 64 extend from the midportion of the integrally cast handle to the outer flange of the top of the container. These portions are sized so that the reduced areas at the attaching points are sufficiently strong to retain the handle in its moulded condition and to ensure that the handle 60 is maintained in this determined position against the sidewall 24 of the rim of the container until forceful separation is desired. This attachment of the handle to the container is contemplated as being maintained as the container is fed through filling and closing apparatus and also in this determined orientation while shipping and storing. The fins, 33, 34, 35 and 36 (or the

alternative forms, 135 and 136) ensure that the ends of the handle 30, as attached at points 31 and 32, are fully attached to the rim portion of the container so that after the midportion of the handle has been separated from the connection portions 62 and 64 the weight of the filled container is easily carried by the handle.

The containers after moulding are usually assembled for shipping and preferably several containers are nested as in Figure 2. In such a nested array the lower surface 26 of an upper container rests upon the upper surface 22 of the next lower container. This vertical spacing of containers is designed to permit the containers to be nested without the sidewalls 16 of adjacent containers becoming a tight interference fit. In practice the spacing between adjacent walls of nested containers is about ten-thousandths of an inch or more per side.

After the containers have been shipped to the filling station, they are separated and fed to a filling mechanism. Usually the material being filled is a fluid-like material and it is contemplated that paint or like fluid material is delivered within the container so as to be brought to a level substantially equal to where the bottom portion of the V-shaped 46 portion of the lid will engage the fluid surface. After filling the container to the desired level, the cover 40 or one of the alternative covers is positioned against the open upper end of the container and is then pushed downwardly into a seating condition. As the interference taper of the V-shaped plug portion of the cover contacts the lip 20 the plug portion of the cover is caused to be displaced slightly inwardly until the portion 48 of the cover slides past lip 20 into the undercut to form a locking fit with the lip of the container. Seated at this depth the lower outer surface portion of the V-shaped portion 46 is an interference fit and provides a lower seal with the inner wall of the container in the region of the junction between the sidewall 16 and the portion 19 of the open top of the container. The lip 20, as it is nested in undercut 50, provides an upper fluid-tight seal of the cover in the container opening.

In the alternative embodiment of Figures 6 and 7 the top fluid-tight seal is provided by lip 120 as it is forced into the undercut 150 as above-identified. The lower second seal is provided as in Figure 2.

To retain this cover in this locked condition against sudden blows against the sidewalls, top or bottom, it is desirable and intended that the extending portion 52 of the cover be brought to a seating condition on the upper surface 22 of the container, after which the downwardly extending annular rim 54 extends around the rim portion 24 of the open end of the container and urges the

ring portion 52 radially outwardly. With the ring portion 52 urged outwardly in this manner the engaging lip 20 is maintained in a locked relationship in undercut 50 so as not to be displaced by a sudden engagement and deflection of the sidewall of the container against the fluid within the container. Thus maintained the cover retains the sealing interference fit of lip 20 in undercut 50 as well as sealing between the plug 46 and the taper 19. The alternative form of Figures 6 and 8 maintain lip 20 in undercut 150 by means of annular rim 54 on rim 24.

If desired the recessed portion 44 of the cover may have a label or catalogue advice pasted therein. Loose labels or booklets may be retained by the alternative embodiment of the cover as shown in Figures 10 and 11 wherein retaining lip 143 provides a circular recess. Labels may also be applied to the outer surface of the container for identification of the contents therein, or a viewing area 400 may be provided as shown in Figure 1. It is contemplated that the material forming both the cover 40 and the sidewalls 16 of the container 15 will be partially opaque and to a certain degree hide the texture and colour of the packaged material. The nature of the moulding material such as high density polypropylene or polyethylene is a preferred material for the moulding of the container and cover. In the container, above-described, it is contemplated that the cover as it is engaged between the lip 20 and the recess 50 provides a first seal of the container and a lower seal is provided by the plug seal. Another seal is additionally provided with the snug relationship of the fit of the rim 54 of the lid over the outer face portion 24 of the container which provides a seal of sorts. As thus assembled it is contemplated that a fluid-tight seal will be provided for the several types of paints and materials that are stored within the container and that the container assembled in the manner as above-described will be economical and provide a highly satisfactory storage container for materials such as water base paints and the like.

The container is readily uncovered or opened by the customer by an easy manipulation of the cover 40. With the container 10 seated on its bottom the user grasps one side of the cover 40 at the annular rim 54 and at one local position this rim portion is slid upwardly from engagement with flange 24. When and as this portion is lifted from the end of the container a continued upward pressure or pulling of the cover enables the undercut 48 of the cover to be dislodged from the lip 20 after which the lower plug seal is loosened and the cover removed.

To replace the cover, it is placed in the open end of the container and one side of the cover is urged downwardly to cause lip 20 to engage the undercut 48. With a local portion seated and engaged the downward pressure is continued around the cover until all the undercut is engaged by lip 20 after which rim 54 is urged downwardly over flange 24 by starting at one side and continuing around the open end until the cover is mounted as in Figures 4, 5 and 6.

In the container and cover of Figures 14A, 14B and 14C it is contemplated that after the container has been filled to the desired level the cover 440 is placed on the top rim of the container as in Figure 14B. The container rim is shown in phantom outline and when the conical surface 460 of the cover is centred on bead 476 of the container rim the inner face of the inwardly extending lip 472 is substantially a slip fit with the outer face 450 of lip 448 of the cover. The cover is urged downwardly until lip 448 is below lip 472 with lip 472 moving into a very light engagement or seating in groove 452. The cover ring portion 454 is now stretched outwardly by causing surface 460 of the cover to act as an inclined ramp or cam to engage bead 476 of the container and cause the bead to be displaced or drawn over the outwardly extending lip 458. In the manner of rolling a tire bead into a wheel rim, the lip 458 of the cover is forced below bead 476 of the container so that bead 476 is caused to enter and snugly seat in groove 456. The cover 440 is preferably made of a slightly stretchable plastics such as polypropylene or polyethylene and so as bead 476 is moved into groove 456 it draws the cover outwardly causing groove 452 to engage the lip 472 of the container rim. The fin 451 is also forced into a tight engagement with the inner face of the vertical section 470 of the container.

In the now mounted condition of Figure 14C the cover 440 forms a fluid tight seal with the upper rim of the container where the V-shape 446 engages the transition of the sidewall 16 from its normal taper to the greater taper 19. A second seal is made where fin or feather lip 451 tightly engages the inner surface of vertical wall section 470. A third seal is made where lip 472 of the container rim engages and seats in groove 452 in the cover. A fourth seal is effected when bead 476 is snugly seated in groove 456 and shoulder 458 engages the under side of bead 476.

In its seated condition of Figure 14C the cover 440 is particularly conditioned to withstand accidental dislodgement from the rim of the container. Bead 476 prevents accidental dislodgement of the outer cover portion as it is contemplated that a cover having a diameter of about a seven and nine hun-

dred twenty-thousandths of an inch at groove 456 is stretched about one-sixteenth of an inch when mounted on bead 476. In like manner the cover diameter at the outer face 450 may be seven and four hundred twenty-thousandths inches which is the inner diameter of lip 472. In its mounted condition the diameter of face 450 has been increased by about a thirty-second of an inch. This ensures that the lip 448 will be positively engaged and retained by lip 472 so that a sudden bending of the container and the resulting pressure thrust against the cover is resisted by and contained by the cover.

When a pry slot for removing the cover is desired, the embodiment of Figure 12 is used. The mounting and remounting of the cover is as described above.

Where the container is to contain a base colour material to which additional colouring material is to be added at the time of sale, either of the embodiments of Figures 13A or 13B may be provided or used. A label or booklet as retained by the cover of Figure 10 may be additionally provided.

The plug seal of V-shaped portion 46 is more or less self-cleaning to permit a reclosing of the container to be effected with a minimum of effort. A wiping of the upper open end of the container usually cleans lip 20 and as there is no place for the paint and the like to collect the reclosing of the container is made with little effort and with a maximum assurance of effectiveness.

Terms such as "left", "right", "up", "down", "bottom", "top", "front", "back", "in", "out" and the like are applicable to the embodiments shown and described in conjunction with the drawings. These terms are merely for the purposes of description and do not necessarily apply to the position in which the plastics containers and covers may be constructed or used.

WHAT I CLAIM IS:—

1. A container and cover therefor comprising:

a) a moulded plastics container having an open top formed with a laterally outwardly extending rim, said container having an upper wall portion having a downwardly tapered inner surface and terminating at or near a laterally inwardly directed bead at the inner edge of the rim;

b) a ring-like portion extending laterally outwardly from the inner bead and forming the upper surface of the rim;

c) an annular flange formed integrally with the ring-like portion of the rim and extending downwardly from the outer edge of the ring-like portion;

d) a bail handle moulded as a part of the container and having its ends extending laterally outwardly from the outer surface of the downwardly-extending flange, said

handle being moulded in position so as to lie wholly below the container rim, the parts of the handle, except its ends, being spaced laterally outwardly of the flange whereby the handle may be swung around and by its ends;

e) a cover of plastics material having a portion depending therefrom, a laterally outer face of such portion being arranged so as to nest within and engage the inner wall of the container in the region of the junction between said upper wall portion and the remainder of the wall of the container;

f) a groove formed at the upper extent of said face of said depending portion of the cover and next to a planar, ring-like portion of the cover extending laterally outwardly from the depending portion of the cover, said groove being arranged to engage the bead of the container when the cover is mounted on the container, and

g) an annular rim formed integrally with said planar portion of the cover and extending downwardly from the laterally outer edge thereof, the annular rim being arranged to engage the annular flange of the rim of the container in such a manner as to urge said planar cover portion laterally outwardly to maintain the bead of the container in the cover groove whilst the annular rim of the cover is in engagement with the annular flange of the container rim.

2. A container and cover therefor as claimed in claim 1, in which the handle, as moulded, lies in a plane normal to a vertical axis of the container and the handle as moulded further has a portion intermediate its ends spaced from and connected to the laterally outer side surface of the rim of the container by at least one connection portion, said connection portion maintaining the handle in the moulded position and spaced condition whilst the container is shipped, filled, stored and the like, the connection provided by such portion being removed when the container comes to be used.

3. A container and cover therefor as claimed in claim 2, in which the handle has its midportion widened to provide a hand-grip portion, and in which between this hand-grip portion and the rim of the container there are provided at least two of said connection portions.

4. A container and cover therefor as claimed in claim 1, 2 or 3, in which the container has formed integrally therewith web reinforcements extending from the ends of the handles to the rim.

5. A container and cover therefor as claimed in any preceding claim, in which the sidewall of the container has a downwardly tapered configuration permitting the nesting of containers and said inner surface of said

upper wall portion has a greater taper than the lower inner surface of the tapered sidewall, and in which said annular flange is formed with a bottom edge providing a support shoulder for the container to rest upon the rim of the nested next lower container so as to maintain the nested containers in a non-locking nested relationship.

6. A container and cover therefor as claimed in any preceding claim, in which the inner surface of the container is provided with a substantially vertical section formed immediately below said bead and between the bead and said tapered inner surface of said upper wall portion, in which said rim of the container has its laterally outer edge formed with a laterally outwardly extending bead, in which below said groove there is provided a lip arranged to engage with said vertical section of the inner surface of the container when the cover is mounted on the container to effect at least a partial plug seal and in which a second groove is formed at the upper extent of the inner face of the annular rim of the cover, the second groove therefore being positioned laterally outwardly of the said groove, the outer groove being disposed to engage the outwardly extending bead of the rim when the cover is mounted on the rim, the cover being further provided with a laterally inwardly directed lip forming a lower portion of said outer groove in the cover, this lip having a conical surface extending outwardly and downwardly to provide a cam surface, the outer groove in the cover when in a relaxed condition being smaller in diameter than the diameter of the outwardly extending bead of the container rim so that the planar-like ring portion and depending portions of the cover need be stretched outwardly a small amount to effect the mounting and retaining of the cover on the rim of the container.

7. A container and cover therefor as claimed in claim 6, in which a small outwardly extending fin is formed in the face of the lip below the inner groove in the cover, the fin being disposed to engage the

substantially vertical section of the inner wall surface of the container to provide a positive line seal of the cover to the container when the cover is mounted on the container.

8. A container and cover therefor as claimed in claim 6 or 7, in which the lower portion of said lip below the inner groove in the cover is tapered downwardly to provide a cam surface.

9. A container and cover therefor as claimed in any preceding claim, wherein the portion depending from the cover is V-shaped in radial cross section.

10. A container and cover therefor as claimed in any preceding claim, in which the upper surface of the cover is provided with a recessed portion arranged to receive a bottom of a like container.

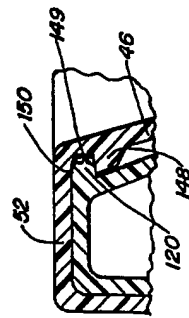
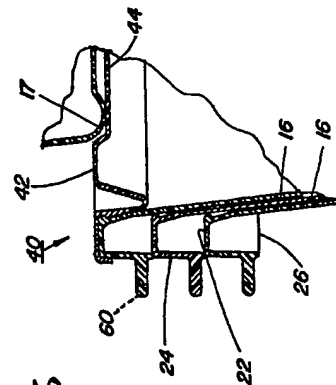
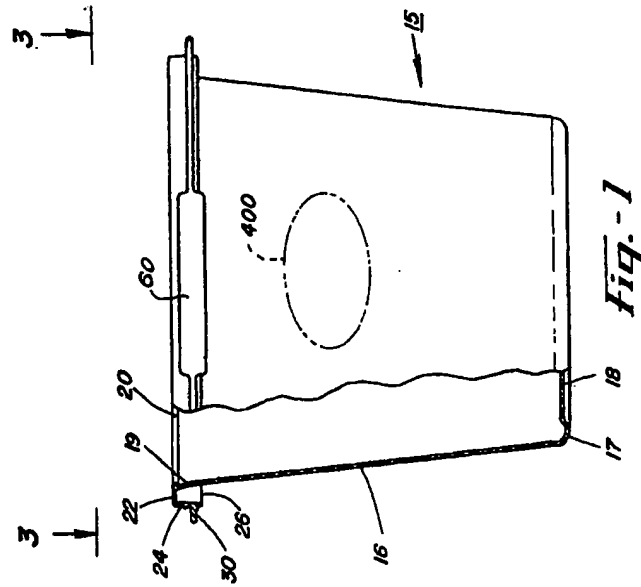
11. A container and cover therefor as claimed in claim 10, in which the recessed portion of the cover is formed with an inverted lip providing an undercut recess within which a label, booklet or the like may be removably retained.

12. A container and cover therefor as claimed in any preceding claim, in which the inwardly directed bead on the container rim has an angular cross-sectional configuration and in which the groove of the cover arranged to receive such bead is formed with at least one inclined surface disposed to engage a mating surface of the bead and in the mounted condition of the cover to compress the bead in the groove to provide a fluid-tight seal.

13. A container and cover therefor as claimed in any preceding claim, in which the ends of the bail handle extend from substantially diametrically opposite positions on the outer surface of the annular flange.

14. A container and cover therefor, substantially as hereinbefore described with reference to the accompanying drawings.

For the Applicants,
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London WC1V 7RD.



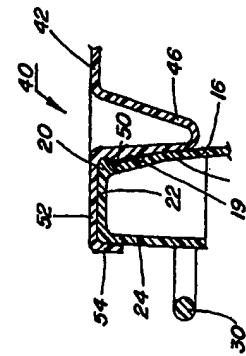


Fig. 4

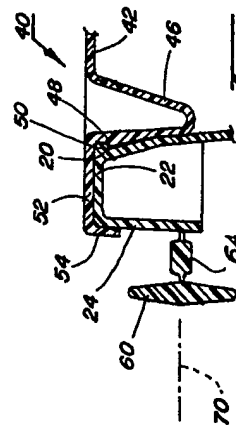


Fig. 5

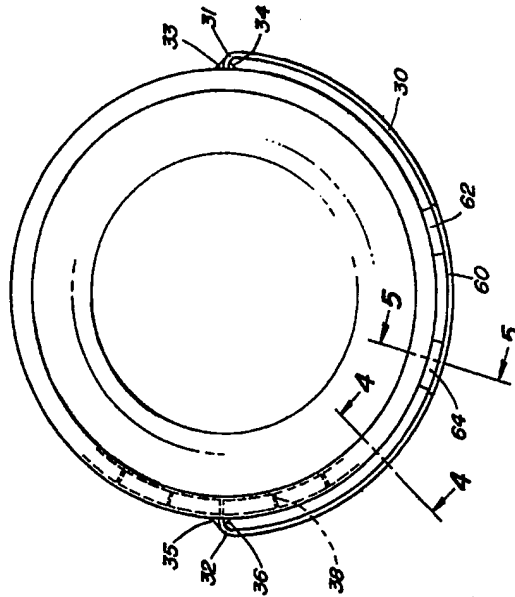


Fig. 3

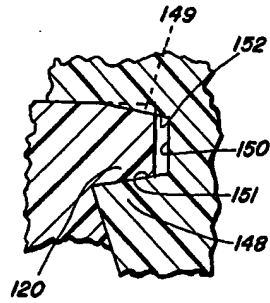


Fig-7

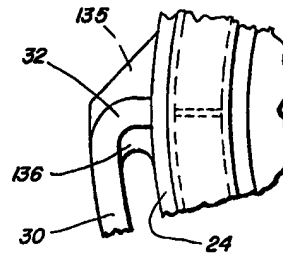


Fig-8

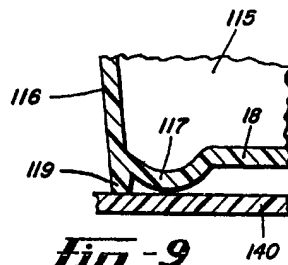


Fig-9

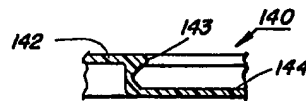


Fig-10

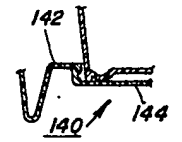


Fig-11

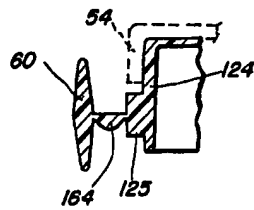


Fig-12

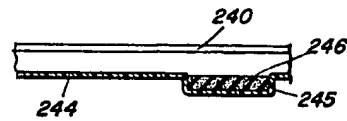


Fig-13A

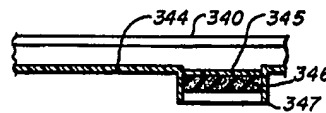


Fig-13B

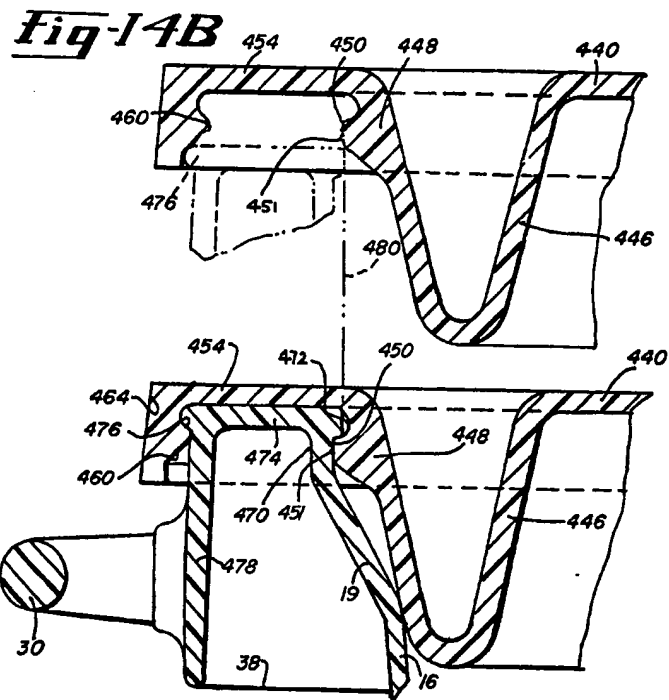
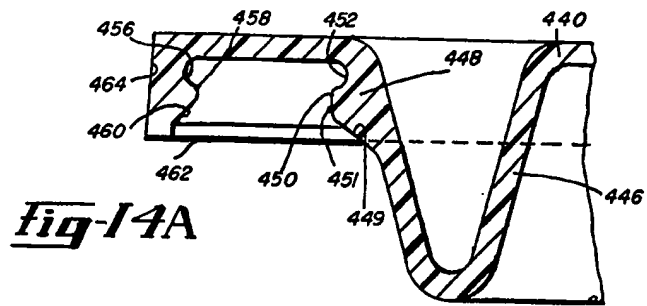


Fig-14C